LISTING OF CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A solid oxide fuel cell that directly operates with a sulfur-containing hydrocarbon fuel that does not have to undergo prior treatment to remove organic sulfur compounds comprising:

(a) a solid electrolyte comprised of an electronic insulator which allows transfer of anions, ~~a ceramic-metal composite~~ **a porous** anode containing at least ceria **deposited in the pores**, and a cathode, at least the solid electrolyte and anode being prepared to form a porous anode layer and a dense solid electrolyte layer wherein like particles of the ~~ceramic-metal composite~~ anode and the solid electrolyte are fused together, and then impregnating the porous anode layer with an aqueous solution containing a salt of at least ceria **to form a porous anode with at least ceria deposited in the pores**;

(b) a fuel comprising a sulfur-containing hydrocarbon having a sulfur content of from about 1 ppm to about 5000 ppm; and

(c) an oxygen source.

2. (Original) The fuel cell according to claim 1, wherein the hydrocarbon is a petroleum distillate.

3. (Previously Presented) The fuel cell according to claim 2, wherein the petroleum distillate is selected from the group consisting of gasoline, diesel oil, naphtha, JP-4, JP-5, JP-8, kerosene, motor oil, natural gas, fuel oil, and mixtures thereof.

4. (Previously presented) The fuel cell according to claim 3, wherein the petroleum distillate is selected from the group consisting of JP-4, JP-5, JP-8, and mixtures thereof.

5. (Previously presented) The fuel cell according to claim 3, wherein the petroleum distillate is selected from the group consisting of naptha, kerosene, fuel oil, and mixtures thereof.

6. (Previously presented) The fuel cell according to claim 3, wherein the petroleum distillate is selected from the group consisting of gasoline, diesel oil, natural gas, and mixtures thereof.

7. (Original) The fuel cell according to claim 2, wherein the hydrocarbon comprises an alcohol.

8. (Previously presented) The fuel cell according to claim 7, wherein the alcohol is selected from the group consisting of methanol, ethanol, and mixtures thereof.

9. (Previously presented) The fuel cell according to claim 2, wherein the hydrocarbon is selected from the group consisting of dry methane, butane, toluene, decane, and mixtures thereof.

10. (Original) The fuel cell according to claim 1, wherein the sulfur-containing hydrocarbon fuel has a sulfur content of from about 1 ppm to about 1000 ppm.

11. (Original) The fuel cell according to claim 10, wherein the sulfur-containing hydrocarbon fuel has a sulfur content of from about 10 ppm to about 1000 ppm.

12. (Original) The fuel cell according to claim 11, wherein the sulfur-containing hydrocarbon fuel has a sulfur content of from about 20 ppm to about 1000 ppm.

13. (Original) The fuel cell according to claim 12, wherein the sulfur-containing hydrocarbon fuel has a sulfur content of from about 100 ppm to about 1000 ppm.

14. (Original) The fuel cell according to claim 13, wherein the sulfur-containing hydrocarbon fuel has a sulfur content of from about 250 ppm to about 1000 ppm.

15. (Previously presented) The fuel cell according to claim 1, wherein the solid electrolyte is an oxide ion conducting material.

16. (Previously presented) The fuel cell according to claim 15, wherein the oxide ion conducting material is selected from the group consisting of doped ceria, doped zirconia, and doped lanthanum gallate.

17. (Previously presented) The fuel cell according to claim 16, wherein the doped ceria is selected from the group consisting of gadolinium doped ceria, samarium-doped ceria, yttria-doped ceria, and mixtures thereof.

18. (Previously presented) The fuel cell according to claim 15, wherein the oxide ion conducting material is yttria-doped zirconia.

19. (Previously presented) The fuel cell according to claim 16, wherein the doped zirconia is scandium-doped zirconia.

20. (Currently Amended) A process of producing electrical energy, comprising:

(a) providing a solid oxide fuel cell that directly operates with a sulfur-containing hydrocarbon fuel that does not have to undergo prior treatment to remove organic sulfur compounds comprising a solid oxide electrolyte that is an electronic insulator which allows transfer of anions, ~~a ceramic metal composite~~ **a porous** anode containing at least ceria **deposited in the pores,** and a cathode, at least the solid oxide electrolyte and anode being prepared to form a porous anode layer and a dense solid electrolyte layer, wherein like particles of the ~~ceramic-metal composite~~ anode and the solid electrolyte are fused together, and then impregnating the porous anode layer with an aqueous solution containing a salt of at least ceria **to form a porous anode with at least ceria deposited in the pores**;

(b) contacting said cathode with an oxygen source; and

(c) contacting said anode with a fuel comprising a sulfur-containing hydrocarbon having a sulfur content of from about 1 ppm to about 5000 ppm.

21. (Original) The process according to claim 20, wherein the hydrocarbon is a petroleum distillate.

22. (Previously presented) The process according to claim 21, wherein the petroleum distillate is selected from the group consisting of gasoline, diesel oil, naphtha, JP-4, JP-5, JP-8, kerosene, motor oil, natural gas, fuel oil, and mixtures thereof.

23. (Previously presented) The process according to claim 22, wherein the petroleum distillate is selected from the group consisting of JP-4, JP-5, JP-8, and mixtures thereof.

24. (Previously presented) The process according to claim 22, wherein the petroleum distillate is selected from the group consisting of naphtha, kerosene, fuel oil, and mixtures thereof.

25. (Original) The process according to claim 22, wherein the petroleum distillate comprises gasoline.

26. (Original) The process according to claim 22, wherein the petroleum distillate comprises diesel oil.

27. (Previously presented) The process according to claim 20, wherein the hydrocarbon is selected from the group consisting of alcohols, dry methanes, butane, toluene, decane, and mixtures thereof.

28. (Original) The process according to claim 27, wherein the hydrocarbon comprises an alcohol.

29. (Previously presented) The process according to claim 28, wherein the alcohol is selected from the group consisting of methanol, ethanol, and mixtures thereof.

30. (Original) The process according to claim 20, wherein the sulfur-containing hydrocarbon has a sulfur content of from about 10 ppm to about 1000 ppm.

31. (Canceled)

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54. (Currently Amended) A solid oxide fuel cell that directly operates with a sulfur-containing hydrocarbon fuel that does not have to undergo prior treatment to remove organic sulfur compounds comprising:

(a) a solid electrolyte comprised of an electronic insulator which allows transfer of anions, a **porous** ceramic-metal composite anode containing at least copper **deposited in the pores**, and a cathode, at least the solid electrolyte and anode being prepared to form a porous anode layer and a dense solid electrolyte layer wherein like particles of the ceramic-metal composite anode and the solid electrolyte are fused together, and then impregnating the porous anode layer with an aqueous solution containing a salt of at least copper **to form a porous anode with at least copper deposited in the pores** ;

(b) a fuel comprising a sulfur-containing hydrocarbon having a sulfur content of from about 1 ppm to about 5000 ppm; and

(c) an oxygen source.

55. (New) The fuel cell of claim 1, wherein the anode further comprising copper deposited in the pores.

56. (New) The process of claim 20, wherein the anode further comprises copper deposited in the pores.

57. (New) A solid oxide fuel cell that directly operates with a sulfur-containing hydrocarbon fuel comprising:

(a) a solid electrolyte comprised of an electronic insulator which allows transfer of anions, a porous anode comprised of a porous material and at least ceria impregnated in the pores, and a cathode,;

(b) a fuel comprising a sulfur-containing hydrocarbon having a sulfur content of from about 1 ppm to about 5000 ppm; and

(c) an oxygen source.

58. (New) The fuel cell of claim 57, wherein the anode further comprising copper impregnated in the pores.

59. (New) A process of producing electrical energy, comprising:

(a) providing a solid oxide fuel cell that directly operates with a sulfur-containing hydrocarbon fuel comprising a solid oxide electrolyte that is an electronic insulator which allows transfer of anions, a porous anode comprising a porous material and at least ceria impregnated in the pores, and a cathode;

(b) contacting said cathode with an oxygen source; and

(c) contacting said anode with a fuel comprising a sulfur-containing hydrocarbon having a sulfur content of from about 1 ppm to about 5000 ppm.

60. (New) The process of claim 59, wherein the anode further comprises copper impregnated in the pores.

61. (New) A solid oxide fuel cell that directly operates with a sulfur-containing hydrocarbon fuel:

(a) a solid electrolyte comprised of an electronic insulator which allows transfer of anions, a ceramic-metal composite anode comprising a porous material and at least copper impregnated in the pores, and a cathode,;

(b) a fuel comprising a sulfur-containing hydrocarbon having a sulfur content of from about 1 ppm to about 5000 ppm; and

(c) an oxygen source.